Weather Statistics for September

Description

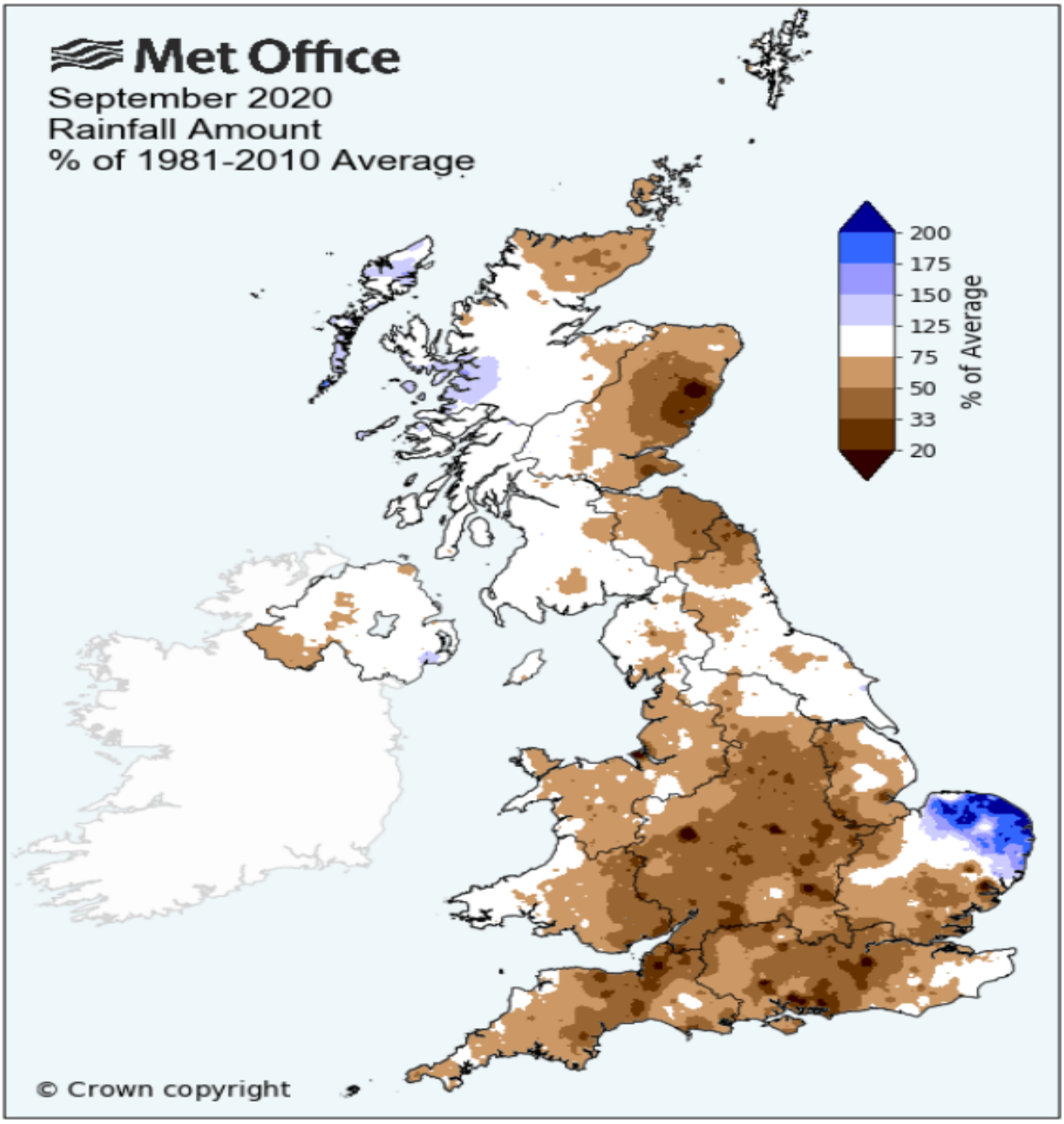
Looking back at September as a whole it turned out to be a fairly average month, although there were a few notable events. For the first time in 4 years we saw temperatures reach 30 degrees and a few long running observing sites recorded their highest September temperature on record, although the end of the month saw more unsettled weather and cooler air, including a record low September temperature for Northern Ireland.

The first few days of September were rather unsettled, with frontal systems moving across from the west. Southern areas began to see less in the way of rain from the 9th onwards, whereas fronts continued to affect the north, with an especially wet period in western Scotland on the 12th/13th. Warm air moved into southern and eastern areas from the 14th, with a late-season hot spell bringing temperatures not far off 30°C on the 14th and peaking at 31.3°C on the 15th, and settled conditions continuing beyond that for another few days. However, around the 23rd the weather became more unsettled and decidedly cooler.

Rainfall

September rainfall was well below average for most regions of the UK, with only parts of western Scotland and East Anglia bucking this trend. Argyll and Bute received 203mm of rainfall, thanks mainly to heavy rain on the 12th while a slow-moving band of rain sat over much of the East Anglian coast on the 25th boosting rainfall levels here. Over the month Norfolk recorded 93.7mm of rain, 66% above its September average, with Houghton Hall receiving 45.2mm of rainfall on the 25th alone, while Cambridge weather station, around 55 miles inland, recorded no rainfall at all on that day.

	Rainfall	
Provisional September figures	**Actual rainfall**	**% of the September average**
UK	74.3mm	77
England	44.9mm	65
Wales	76.2mm	65
Scotland	121.8mm	90
Northern Ireland	58.1mm	85


Met Office
September 2020
Rainfall Amount
% of 1981-2010 Average
200
175
150
125
75
50
33
20
% of Average
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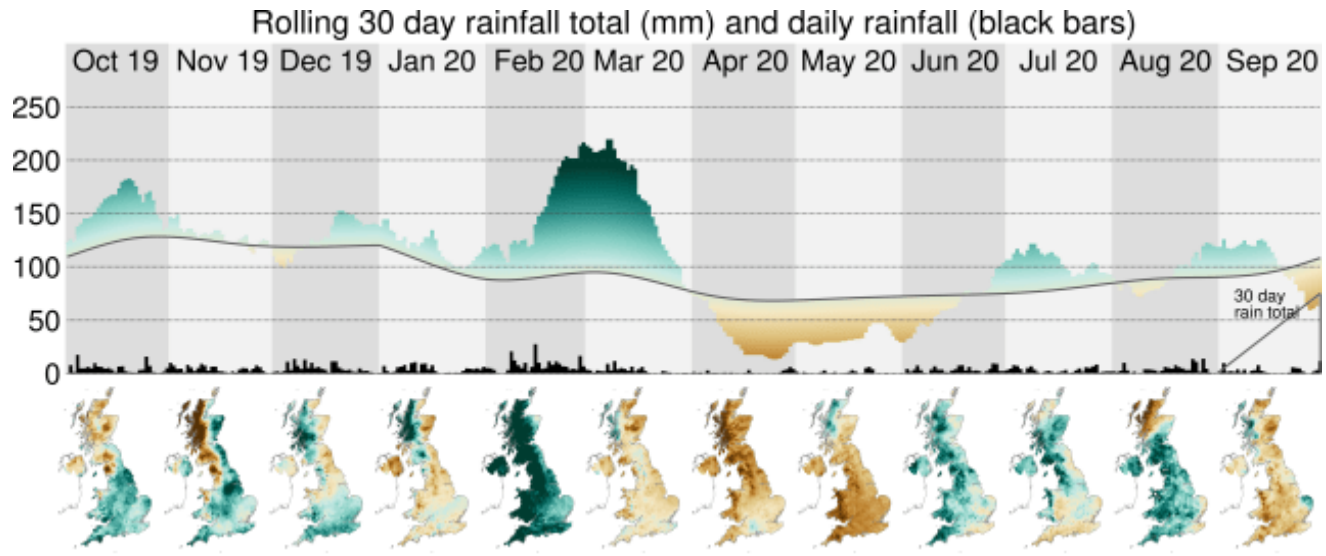


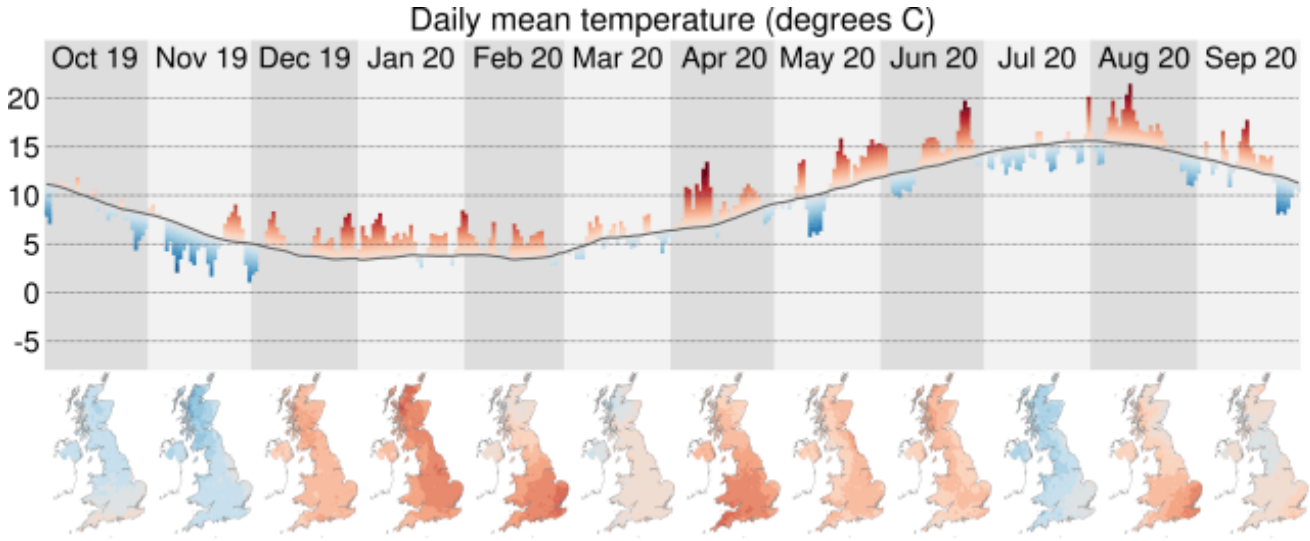
Temperature

For the first time since 2016 we saw temperatures reach 30 degrees in September. The 14th and 15th September were the warmest days this month. The 14th reached 29C and 6 weather stations recorded temperatures of 30C or above on the 15th.

Back in 2016 the hot weather was longer lasting and more wide-spread with temperatures reaching 34.4C at Gravesend in Kent on 13th September 2016.

Northern Ireland recorded its lowest minimum temperature on record for September on the 27th with a minimum of -3.7C. This beats the previous record of -3.6C which was again set at Katesbridge in 2018.

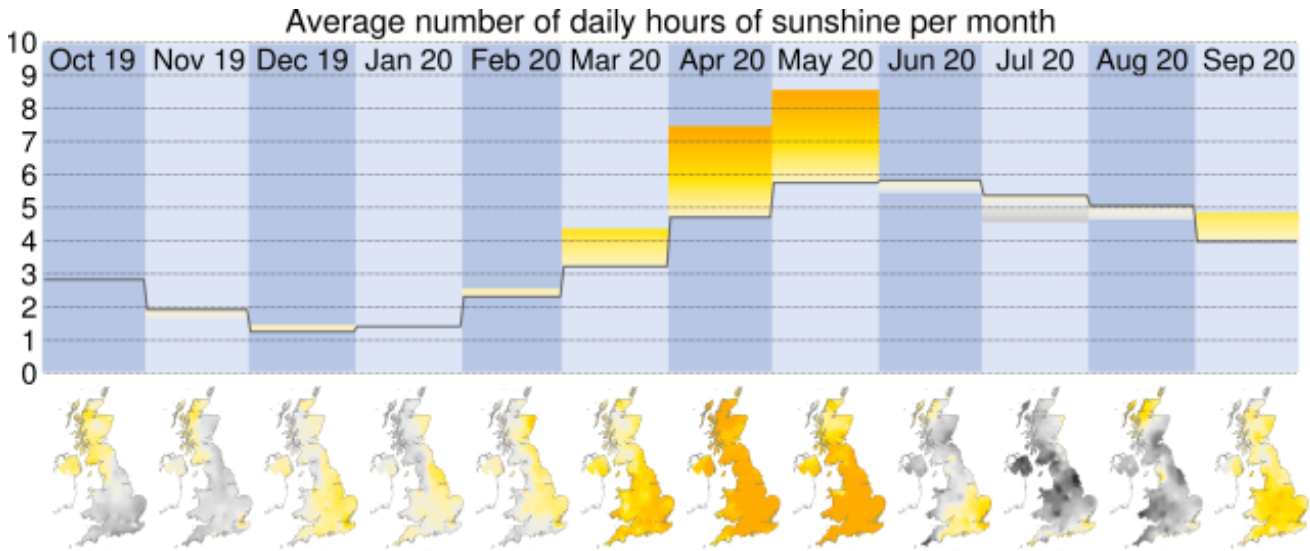
	Maximum temperature		**Minimum temperature**	
Provisional September figures	**Actual °C**	**Difference from Sept average °C**	**Actual °C**	**Difference from Sept average °C**
UK	17.1	0.6	8.6	-0.2
England	18.6	0.7	9.3	-0.2
Wales	17.2	0.6	8.9	-0.2
Scotland	14.8	0.4	7.3	-0.3
Northern Ireland	16.5	0.4	8.6	-0.1



Sunshine

September was a sunny month overall for many with most areas seeing above average sunshine hours.

	Sunshine	
Provisional September figures	**Actual sunshine in hours**	**% of the September average**
UK	145.3	117
England	166.2	121
Wales	153.7	120
Scotland	112.5	107
Northern Ireland	121.9	107



You can get the most accurate and up to date forecast for your area using our forecast pages and by following us on Twitter and Facebook, as well as using our mobile app which is available for iPhone

from the App store and for Android from the Google Play store. You can check the latest weather warnings on our severe weather warnings pages.

For the latest guidance to follow during the COVID-19 pandemic please visit the UK Government's coronavirus advice page. Those living in Scotland, Wales and Northern Ireland can access country-specific advice.

Date Created
October 2020

How will La Nina affect our winter weather?

Description

La Niña is now present in the tropical Pacific and forecasters are suggesting these conditions will continue throughout the winter months.

La Niña is one of the three phases of the phenomenon known as the El Niño-Southern Oscillation, El Niño – the warm phase, La Niña – the cool phase and lastly the neutral phase. During La Niña strong trade winds blow warm water towards the west Pacific causing an upwelling of cool water from the ocean depths in the east Pacific leading to variations in global weather.

These changes in the location of warm and cool ocean water lead to a shift in rainfall towards the western Pacific putting areas such as north-east Australia, and Indonesia at risk of heavier than normal rainfall. While areas on the other side of the tropical Pacific, such as California, could be at risk of drought. La Niña can even influence the Atlantic jet stream and our weather here in the UK.

Prof. Adam Scaife, head of long range prediction at the Met Office said, “La Niña has a profound effect on weather across the globe with us even seeing impacts that extend across the UK.

“In late autumn and early winter it historically promotes high pressure in the mid-Atlantic, which stops Atlantic weather systems from delivering mild air to the UK, and therefore can allow cold conditions to intensify. However, in late winter La Niña can drive a shift of the jet stream towards the Poles increasing storminess and heavy rainfall, while bringing milder conditions”.

Other factors affecting our winter weather.

The Quasi-Biennial oscillation, the variation in winds high above the equator, is in its westerly phase at present and this increases the chance of a mild, wet and stormy winter.

Meanwhile, the sun is in a new solar weather cycle, solar cycle 25. This cycle started around 9 months ago and at this stage can be associated with colder winter weather.

How will La Niña impact global temperatures?

Globally 2020 remains on track to be one of the warmest on record. Although La Niña historically reduces global temperatures, it is not expected to be enough to counterbalance human-induced climate change, but it may be enough to just prevent 2020 from being a new record.

This comes after 2019 was one of the three hottest years on record and all the years since 2013 have been warmer than any previous years since records began in the 1800s.

Date Created
October 2020

Climate projections show extreme UK’s weather will become even more extreme

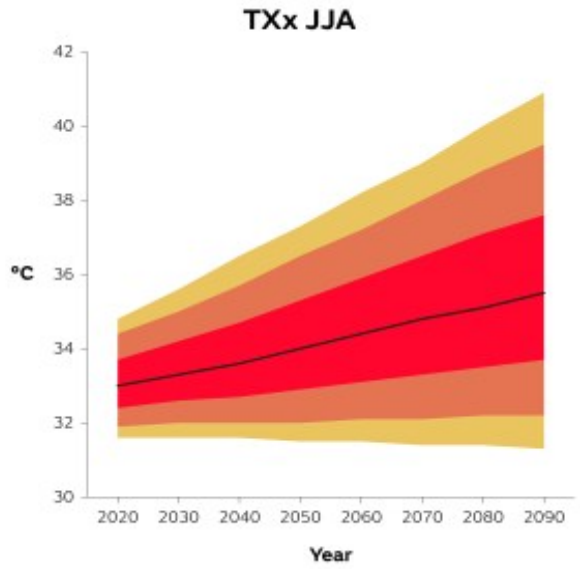
Description

“The UK’s set of climate projections are the best window we have on how climate change is likely to affect us out to the end of the century,” said Professor Jason Lowe OBE*, the lead for UKCP – the UK’s climate projections.

The latest iteration of climate projections for the UK were released in 2018, updating the set from 2009. In the early days of climate projections, users were able to examine features such as the expected rise in average temperature for a given location at a particular time of year. “But users also need an understanding of what extremes of weather will be like: What will be the maximum temperature in summer? Or how much rain will fall in the heaviest rainfall events,” added Professor Lowe. Being able to interrogate the data in this way is exceedingly important for a whole range of user groups, from the rail industry to water companies and from town planners to the energy sector.

In 2019 there was a programme of additions , including a rollout of a new set of projections which examine climate extremes on a grid of 2.2km. This provides new capability to resolve the fine detail of weather extremes and predict events such as flash flooding, based on new capability to resolve the dynamics of thunderstorms.

In addition to more local detail, information is needed on uncertainties associated with future extremes, in order to support assessments of risks at the city-scale, for example. Later this week the Met Office will be releasing a further update which will add new probabilistic projections on the hottest and wettest weather extremes. Dr Simon Brown, who led this extension, explains: “This work provides a range of plausible outcomes for rare events expected on average once every 20, 50 and 100 years, for a range of emissions scenarios. This will allow planners to weigh the risk of different outcomes against the costs of adaptation.”



One -in-twenty year temperature extremes for Exeter. Black line is the median value.

Ahead of the release of the data for the whole of the UK, the Met Office has released information for Exeter which shows the impact that climate change could be expected to have on the city.

Currently, in Exeter there is around a one-in-twenty chance of the city recording daily maximum temperatures exceeding 33.0 C, in a given summer. However the figures show that even with a mid-range scenario of greenhouse gas emissions (RCP4.5), this value would be more likely than not to exceed 35.0 C by 2090, while maximum temperatures of over 40.0 C cannot be completely ruled out.

The figures for rainfall extremes are also higher in the future than now. Currently, there is a likelihood that in one winter out of twenty the city will see a single day with over 45mm of rainfall, but by 2090 the same figure is nearly 50mm; around a 10 per cent increase of rainfall on the heaviest day for rain in winter. The projections show that values of around 60mm cannot be ruled out completely.

Professor Jason Lowe OBE

More information about UKCP is available on the Met Office's Weather Snap podcast.

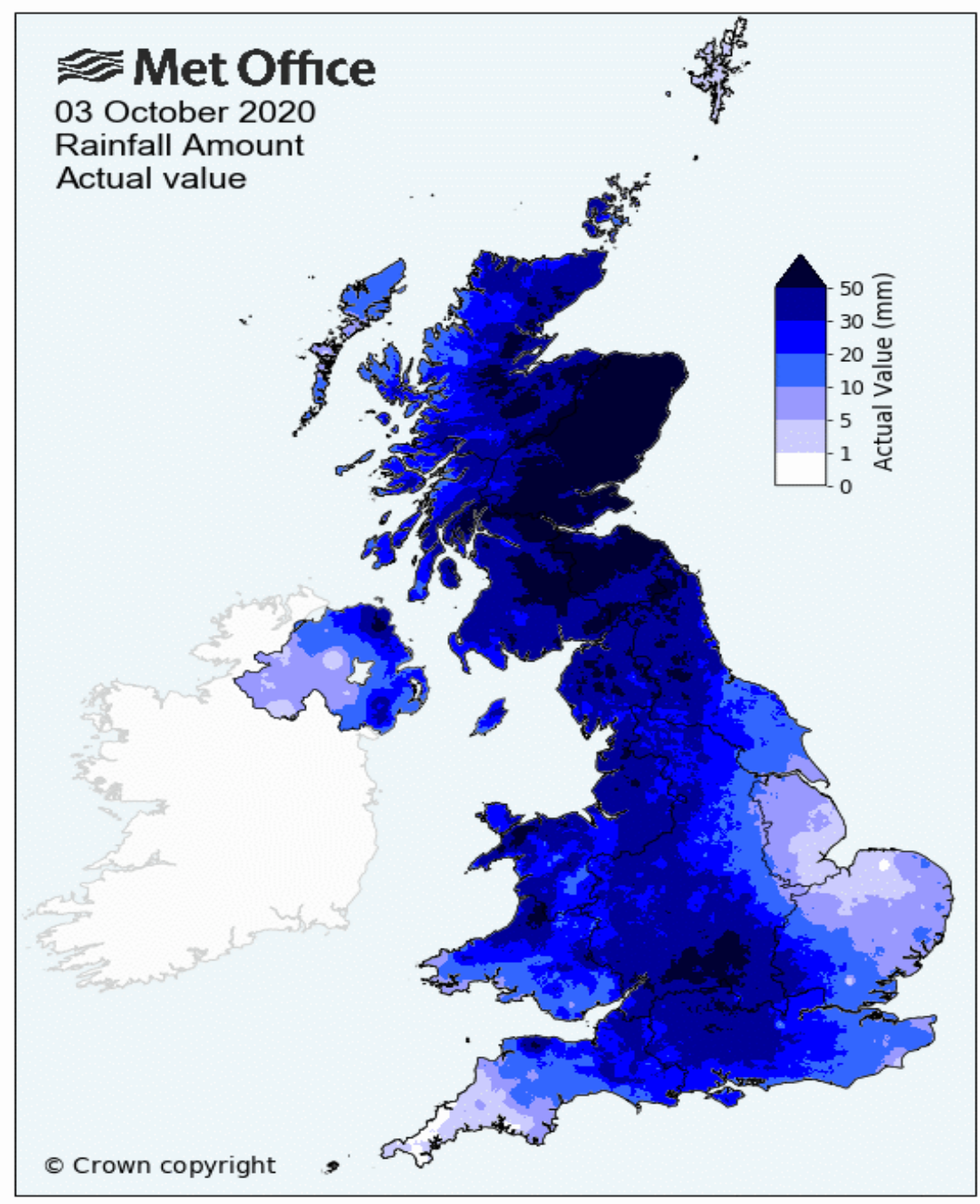
- Professor Jason Lowe, Head of Climate Services at the Met Office, is a world-leading expert in climate science. His work has been recognised in the Queen's Birthday Honours list 2020, where he was awarded an OBE. This was announced on Saturday 10 October, 2020.

Date Created
October 2020

Rainfall on UK’s wettest day on record could have more than filled Loch Ness

Description

Saturday 3 October 2020 is now the wettest day on record since 1891 for UK-wide rainfall. It received the greatest rainfall in any single day averaged out across the UK, beating the previous record on the 25 August 1986.



Saturday 3 October was the wettest day in the UK rainfall record stretching

back to 1891.

Dr Mark McCarthy is the head of the Met Office National Climate Information Centre. He said: “In climate statistics, 2019 will be remembered for possessing the UK’s hottest day, whereas 2020 will be associated with rainfall records. Saturday 3 October – the day which followed Storm Alex – currently holds the record for the UK’s wettest day in a daily series stretching back to 1891 – that’s over 47,000 days. The rainfall was very widespread resulting in average rainfall across the entire UK of 31.7mm, or to put it another way, if expressed as the volume of rain that is more than the capacity of Loch Ness – the largest lake in the UK by volume at 7.4 cubic kilometres of water. It is exceptional to have 30 to 50mm or more of rain falling so extensively across the UK – from the south coast of England to the north coast of Scotland – in a single day”. The previous record was 29.8mm on 25 August 1986.

At 7.4 cubic kilometres, Loch Ness is the largest lake in the United Kingdom by volume. Pic: Shutterstock.

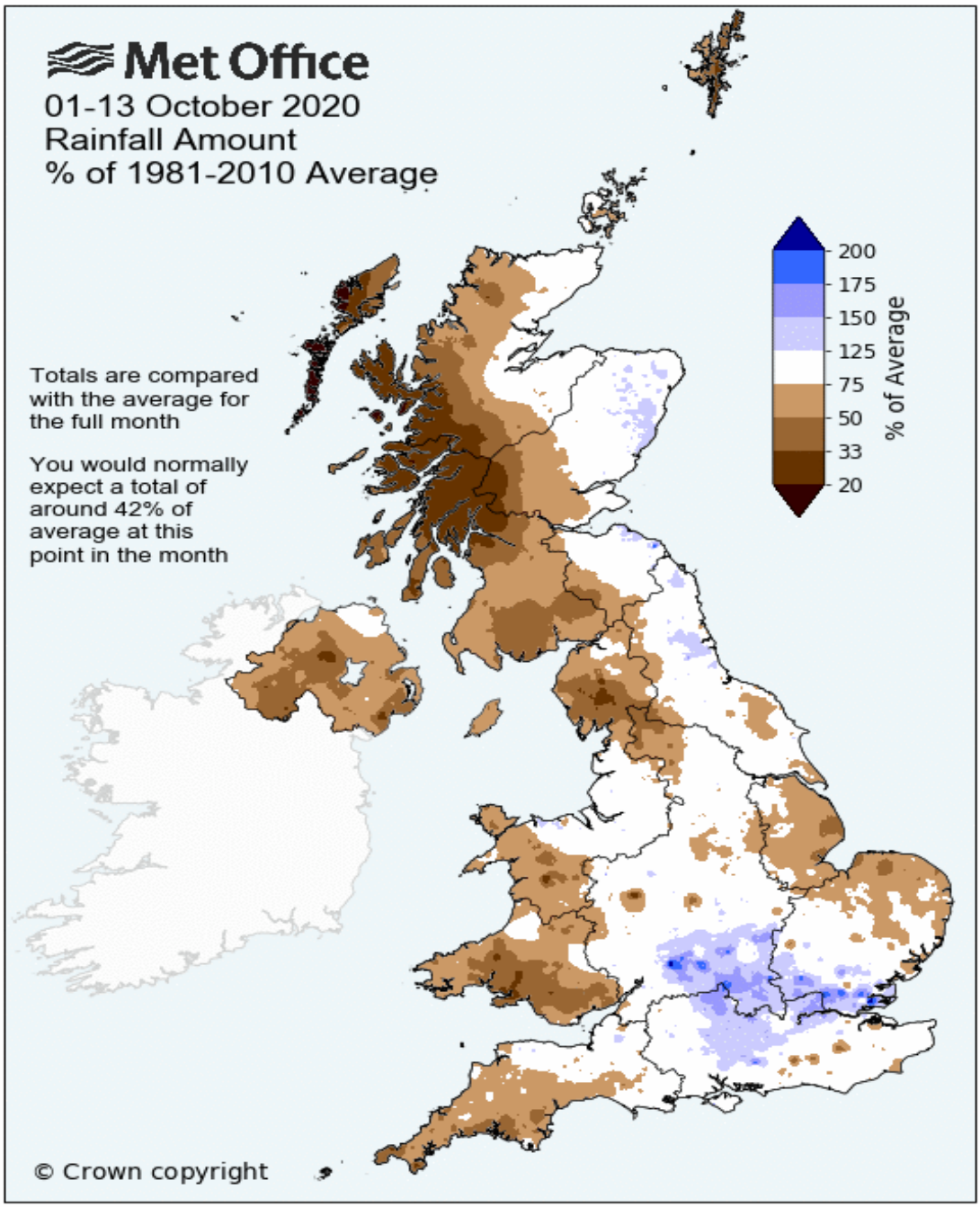
Generally, the start to October (1-13th) has been very wet with the early provisional statistics showing the UK overall has seen 68% of its average rainfall for the month of October and England has been the wettest with 87% of its monthly average, in particular south east and central southern England already reaching 110%.

Commenting on 2020 Dr McCarthy added: “Remarkably, 2020 also has the UK’s third wettest day on 15th February with 27.2mm, from named storm Dennis during what then became the wettest February on record”.

More than 20 counties across the UK have already had 100% or more than their average October rainfall and many others are not far behind. Oxfordshire has been the wettest county compared to the

1981 – 2010 average with 148% average rainfall (107.1mm). Followed by Buckinghamshire reaching 139% (103.4mm) of its average rainfall, Berkshire with 138% (108.0mm) and Hertfordshire reaching 132% (96.9mm). Other counties already reaching 100% or above are Aberdeenshire, Angus, Banffshire, Bedfordshire, Berwickshire, Cheshire, City of London, City of Aberdeen, East Lothian, Essex, Gloucestershire, Greater London, Hampshire, Isle of Wight, Kincardineshire, Moray, Northamptonshire, Staffordshire, Surrey, Tyne and Wear, Warwickshire, Wiltshire and Worcestershire.

Wales, Scotland and Northern Ireland rainfall statistics remain at average numbers, and conversely Argyll and Bute has been significantly drier with only 29% of its average rainfall (70.7mm). The distribution of rainfall can be seen in the map below.



Already during October, many parts of the UK have recorded more than their

monthly average rainfall for the month.

Date Created
October 2020

State of the African Climate update and the importance of climate services

Description

Every year the World Metrological Organization (WMO) publishes a range of reports examining the latest evidence on different meteorological and climatological factors. This year, a group of international specialists has produced a report specifically focusing on the State of the Climate in Africa, providing a snapshot of climate trends, observed high-impact events and associated risks and impacts in key sensitive sectors.

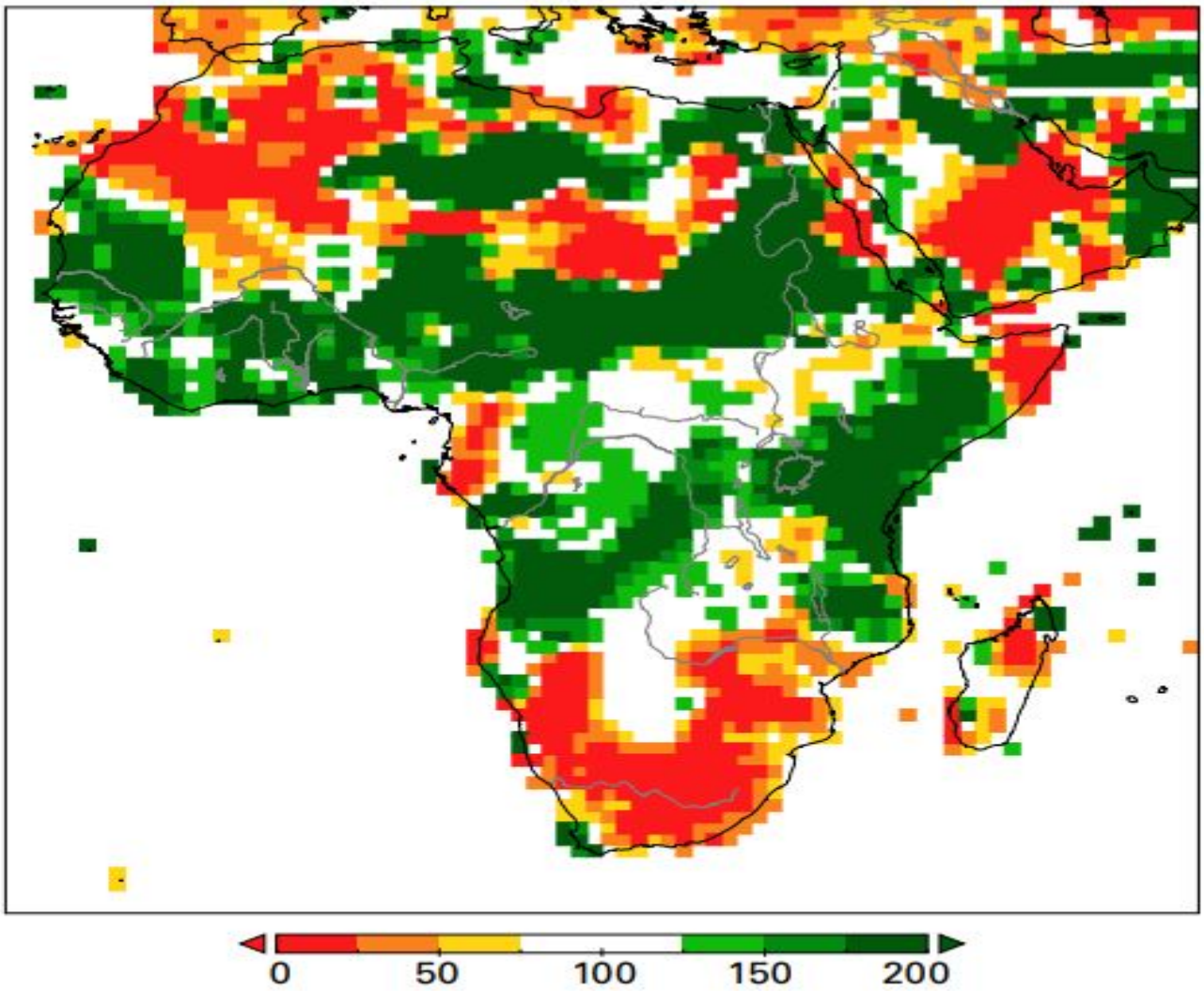
The Met Office was part of this group with scientists providing information on observed temperatures and detail on projections of what we could see in Africa in the future.

John Kennedy, who works on climate monitoring at the Met Office, was involved in the development of the report:

Africa is a hugely diverse continent, with vastly different landscapes ranging from rainforests to savannahs and deserts. As we are seeing in other parts of the world, temperatures in Africa have been rising in recent decades. 2019 was most likely the third warmest year on record for the continent, behind 2010 and 2016. As a continent, Africa was between 0.56°C and 0.63°C above its long-term average (1981-2010) temperature in 2019. Some individual countries including South Africa and Namibia saw 2019 temperatures locally exceeding 2°C above average.

As well as rising heat, Africa was affected by numerous extreme weather events in 2019, including Tropical Cyclone Idai, which was among the most destructive tropical cyclones ever recorded in the southern hemisphere with over 1,200 associated deaths in Mozambique, Zimbabwe and Malawi.

Most areas of Africa, covering a wide range of climate zones, saw above average temperatures in 2019, but rainfall patterns were much more variable. In 2019, in Southern Africa severe drought affected many areas which had already suffered a prolonged drought from 2014 to 2016. Meanwhile, in the Greater Horn of Africa, conditions shifted from very dry in 2018 and the start of 2019 to floods and landslides associated with heavy rainfall in late 2019. Flooding also affected the Sahel and surrounding areas from May to October 2019.



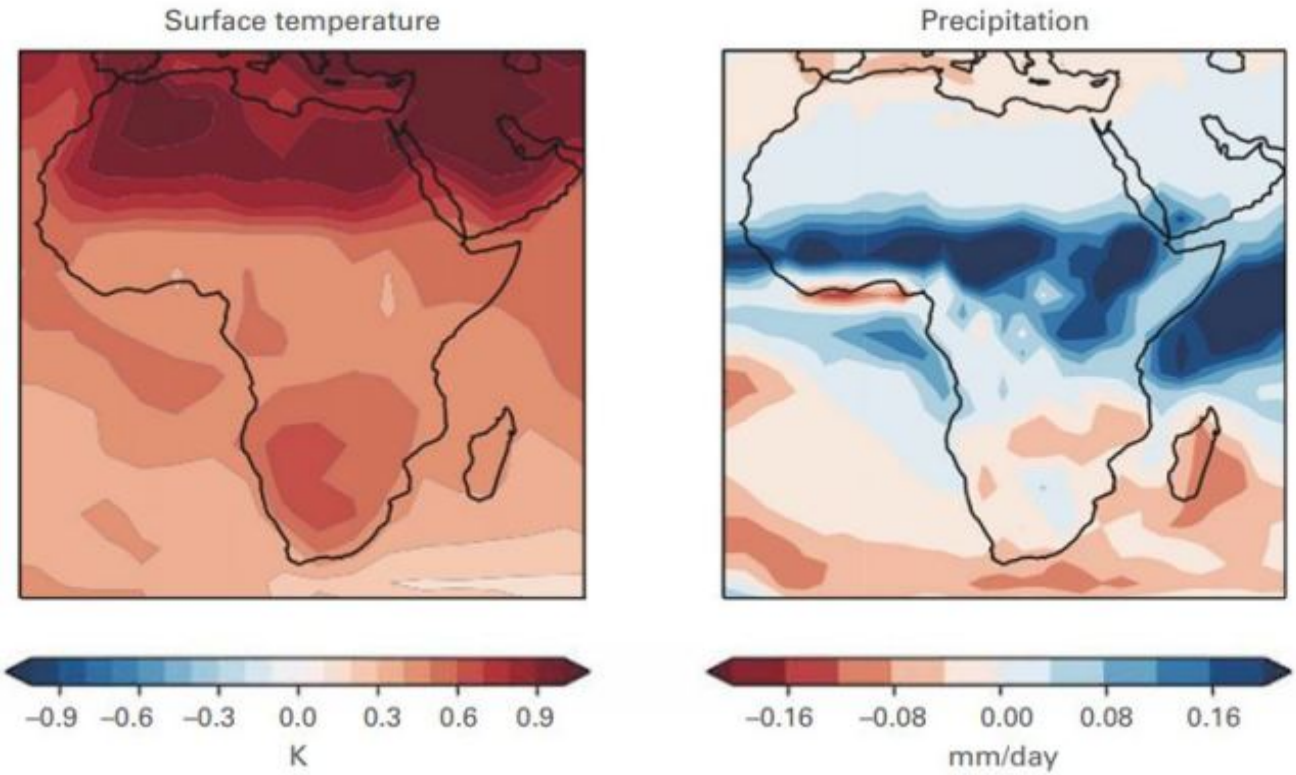
WMO State of the Climate in Africa: Percentage of normal precipitation for October 2019 with respect to the 1951–2010 reference period, showing high precipitation across tropical Africa and low precipitation across the extra-tropics. Source: GPCC, Deutscher Wetterdienst, Germany.

While extreme events often depend on the chaotic whims of the weather, considered over longer periods – months, years, decades – we can discern patterns that allow us to understand and, in some cases, to predict them. While individual events can be forecast reliably only days in advance, long-term drivers can shift the odds of such events happening in a predictable way. The strong positive phase of the Indian Ocean Dipole was one such driver associated with the extreme rainfall in Eastern Africa late in 2019. As we look back over the past decades, the warming signal from increased greenhouse gases in the atmosphere is increasingly clear.

As climate change continues to influence our weather and climate extremes, to make sure we can make accurate projections for what sort of extremes we might see in the future it is vital to start anykind of research with an accurate foundation understanding of the area. To help with this, last year an international collaboration of scientists led by the Met Office developed the first convective-permitting regional climate model, known as CP4-Africa. This model enables scientists to look at much finer detail the kinds of rainfall extremes Africa could experience as our climate warms.

Lead author of the first paper on future climate change from the CP4-Africa simulations, Dr Elizabeth Kendon of the Met Office, explains that, “Very high resolution climate projections provide a glimpse into future weather and climate extremes over Africa. CP4-A suggests that over the Sahel and east Africa extreme heavy rainfall events that occur about once every 30 years now, may occur once every 3-4 years by the end of the century if emissions continue to rise throughout the 21st century under a high emissions scenario.

“Dry spells during the wet season exceeding 10 days in length are almost twice as frequent in the future compared to the present-day over parts of central and western Africa: a signal which is not seen in a coarser resolution 25km model.”



WMO State of the African Climate: Multi-model average forecasts of near surface temperature and precipitation for the five-year period 2020–2024. Colours show anomalies relative to the period 1981–2010 for the average of several international forecasts contributing to the WMO Lead Centre for ADCP (https://hadleyserver. metoffice.gov.uk/ wmolc/). Forecasts are initialised with observations and start on or after 1 November 2019. Source: Met Office, United Kingdom

It is well understood that Africa's population and landscapes are vulnerable to extreme weather events. It is therefore important that we use our understanding to help those vulnerable communities prepare and adapt for future challenges as our climate changes.

Helen Bye is the Met Office's Head of International Development and Principal Adviser to the Foreign, Commonwealth and Development Office (FCDO):

As detailed in the WMO 2019 State of the Climate in Africa report, Africa is vulnerable to the impacts of climate variability and change. Continuing to conduct climate research and improving climate modelling for the continent is vital to ensure the best possible understanding of the challenges ahead, in order to mitigate against and adapt to the impacts of climate change. This report also made reference to the need to strengthen multi-hazard early warning systems (MHEWS) and build capacity in the provision of climate services in Africa, and the WMO 2020 State of Climate Services report echoed this. According to the latest report, over the last 50 years 35% of deaths related to weather, climate and water extremes occurred in Africa and yet the continent has one of the weakest capacities in MHEWS.

At the Met Office we work with our global partnerships to help build capacity in weather and climate services, including in Africa. Those partnerships involve many and varied organisations, from the WMO, national and regional meteorological services, to non-governmental organisations, United Nations bodies and community initiatives. Critically our international development work takes a people-led approach, ensuring that the capacity building process is built around the needs of the users of weather and climate information.

The Risk-Informed Early Action Partnership, of which the Met Office is a founding member, contributed to the WMO 2020 State of Climate Services report and is an example of the global collaboration needed to bring about significant change. The partnership aims to make 1 billion people safer from weather and climate-related disasters by expanding early action financing and improving climate information and early warning systems and the capacity to act on the risks they identify.

One example of the benefits of MHEWS highlighted in the WMO 2020 State of Climate Services report (page 35) is on the Weather and Climate Information Services for Africa (WISER) HIGHWAY project, funded by the FCDO. Led by the WMO with partners including the Met Office, this project worked with the national meteorological services of countries bordering Lake Victoria to develop a regional Early Warning System (EWS). 3000 to 5000 deaths occur in the Lake Victoria Basin every year due to navigation accidents caused by strong winds and high waves also tragically resulting in loss of livelihood for their dependents. Data from the project suggests that there has been an approximately 30% reduction in deaths since the introduction of the EWS. You can learn more in this BBC World Service podcast (8:45-15:05).

The local challenges faced on Lake Victoria led to the development of this EWS, and the people-led approach I mentioned along with an understanding of the risk factors is key to improving or developing new weather and climate services in Africa. Different African countries and regions face different weather and climate challenges, so the weather and climate community and partners need to continue to translate robust science into relevant and timely services which enable people to take action to stay safe and thrive.

Date Created
October 2020